# On the Complexity of Inductive Definitions

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September 9, 2013

## Abstract

We study the complexity of computable and $\Sigma_1^0$ inductive definitions of sets of natural numbers. For we example, we show how to assign natural indices to monotone $\Sigma_1^0$-definitions and we use these to calculate the complexity of the set of all indices of monotone $\Sigma_1^0$-definitions which are computable. We also examine the complexity of a new type of inductive definition which we call *weakly finitary* monotone inductive definitions. Applications are given in proof theory and in logic programming.